

Evaluating the potential of the entomopathogenic nematode *Heterorhabditis bacteriophora* 'Oswego' to persist in soils and soil mixes used in the nursery production of woody ornamentals.

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Background and Justification:

Black vine weevil, *Otiorhynchus sulcatus* is a very serious insect pest of woody ornamentals nationwide requiring frequent applications of insecticide to reduce adult populations in an effort to reduce larval root feeding and minimize plant death. Black vine weevil is a serious economic pest in commercial plantings, residential plantings, and nursery production (both containerized and field). Black vine weevil along with the other three introduced *Otiorhynchus* species were introduced from Europe on sailing boat ballast during the 19th century. All four species are serious agricultural or nursery pests, flightless, parthenogenetic, and susceptible to entomopathogenic nematodes.

Entomopathogenic nematodes have excellent potential as biological control agents of insect pests. They have a broad host range, possess the ability to actively search for hosts, present no hazard to mammals, and were made exempt from registration and regulation requirements by the US EPA . Soil-inhabiting insect larvae have shown consistent and high susceptibility to entomopathogenic nematodes. In addition, many soil-inhabiting insect larvae have shown consistent and high susceptibility to entomopathogenic nematodes. However, variable control of insects with nematode applications have been reported in the literature. Many of the failures have been attributed to poor nematode species selection, poor nematode strain selection, poor matching of the nematode to the insect habitat and little consideration about the prevalent cultural practices and their influence on the nematode's ability to persist in the agricultural system.

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